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SUPPORT ASSEMBLY

This invention concerns a support assembly, and particularly but not exclusively an assembly for supporting a floor, roof and/or ceiling.

Floor beams or trusses are used extensively in building. In many instances due to the scarcity of wood, wooden beams and the like are becoming quite expensive. Also, transporting such beams can be expensive. Furthermore, a significant amount of work can be required on site in lifting and installing such beams. It is often required to provide such beams at a predetermined spacing and a not inconsiderable amount of work may be involved in providing the required spacing.

According to the present invention there is provided a support assembly, the assembly comprising first and second parts, each part being of generally planar configuration and comprising a pair of spaced parallel elongate members, and a support arrangement extending between the elongate members, the first and second parts being mountable together with the planes thereof inclined relative to each other and first ones of the elongate members aligned adjacent and parallel to each other such that the apex defined by the meeting of the first elongate members provides a first support surface, and opposite sides of the other elongate members define second spaced support surfaces.

The support arrangement may comprise a plurality of spaced individual support members extending between the elongate members. Alternatively the support arrangement may comprise a substantially planar support member. The individual support members may comprise metal members, which may be pressed from metal sheet. The planar support members may comprise wooden sheets, which may be plywood or glued shavings.

The first and second parts may be substantially identical to each other.

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Means are preferably provided for bracing apart the other elongate members of the first and second parts, and said means may comprise a bracing bar. The bracing means may also comprise a bracket for mounting the end of the bracing bar. Bracing bars are preferably provided at least adjacent each end of the elongate members.

The elongate members are preferably arranged such that when the first and second parts are mounted together, the top edges of the first elongate members on each part are substantially co-planar to define a first support surface, and lower edges of the other elongate members on each part which define the second support surfaces are also substantially co-planar, and parallel to the top edges of the first elongate members.

The elongate members may be wooden.

In one embodiment the elongate members have a rectangular cross-section. In another embodiment the elongate members have a cross-section comprising two opposite parallel sides interconnected by a first side perpendicular thereto, and a second side inclined relative to the first side. The inclination of the second side preferably determines the inclination between the first and second parts. A pair of elongate members may be formed by cutting an elongate rectangular cross-section component longitudinally in half and at an inclination. The pair may be used adjacent each other respectively each on adjacent first and second parts.

Each part of the assembly preferably comprises frames which mount the respective elongate member and also the support arrangement. Where the support arrangement comprises a plurality of individual support members, the support members may extend at an inclined orientation relative to the elongate members, and adjacent individual support members may extend at opposite inclinations to each other.

The frames preferably comprise an elongate part engagable with an elongate member. The elongate part may comprise a first section locatable

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alongside a side of the respective elongate member and mounted thereto. The first section may have a substantially L-shaped configuration and provide support beneath and on one side of the respective elongate member. The frames preferably also comprise a second section inclined relative to the first section so as to provide the required inclination between the first and second parts.

A channel may be provided on the frame and desirably the second sections thereof, to slidably accept ends of the bracing bars, or brackets for mounting ends of the bracing bars.

Clips may be provided for mounting the first and second parts together. The clips may be engagable with the respective frames and may engage with formations on the frame. A lip may be provided extendable for part of or the whole length of the frame, in which lip the clip is engagable. The clips may be sprung and may extend over the first elongate members. The clips may be used to temporarily mount the first elongate members together whilst the remainder of the assembly is put together and the bracing installed.

Alternatively or in addition, the first and second parts may be mounted together by pins or pegs extending through adjacent elongate members.

Rather than using frames, the support arrangements may be mounted directly on the elongate members. The support arrangements may be mounted on the elongate members by gluing and/or stapling.

Where the assembly is intended to rest on a wall or other fixture, the first elongate members may extend beyond the other elongate members at least at one end thereof. A support component may be provided on the underside of the extended part of the first elongate members to rest on the wall, and said component may comprise a wooden block.

When an assembly is to be mounted to an adjacent such assembly, a

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connecting member which engages between respective other elongate members may be provided. The connecting member may be elongate with a substantially T-shaped cross section, with the stem of the T locatable between the adjacent elongate members, and the head of the T mountable to each of the adjacent elongate members. Alternatively elongate members on adjacent assemblies may be mounted together by pins or pegs extending therethrough.

The individual support members are preferably formed separately from the elongate parts of the frames, and may be mounted thereon by engagement in the channels. Engagement may be provided by spreading part of the support members in the channel and/or by riveting or other fixing means.

The invention also provides a support assembly for supporting a floor, roof and/or ceiling, the assembly being according to any of the preceding sixteen paragraphs.

Embodiments of the present invention will now be described by way of example only and with reference to the accompanying drawings, in which:-

Fig. 1 is a diagrammatic perspective end view of part of a first support assembly according to the invention;

Fig. 2 is a more detailed diagrammatic perspective end view of part of the assembly of Fig. 1 in use;

Fig. 3 is a diagrammatic perspective view of part of the assembly of Fig. 1 with a component partially removed, and with part of a similar adjacent assembly also shown;

Fig. 4 is a detailed diagrammatic perspective end view of part of the assembly of Fig. 1;

Figs. 5 and 6 are diagrammatic cross-sectional side views of part of the

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assembly of Fig. 1 being formed;

Fig. 7 is a diagrammatic perspective rear view of an alternative construction of part of the assembly of Fig. 1;

Fig. 8 is a diagrammatic end view of a second support assembly according to the invention and part of an adjacent such assembly; and

Fig. 9 is a diagrammatic end view showing part of the construction of the second support assembly of Fig. 8.

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Figs. 1 to 7 of the drawings show a first support assembly 10 suitable for use in place of a beam or truss for use in supporting floors, roofs and/or ceilings. The assembly 10 is formed from two identical parts, which are shown mounted together in the drawings. Each part comprises an upper wooden beam 12 and a lower wooden beam 14. The beams 12 and 14 are mounted in a spaced parallel relationship in each part by an elongate frame 16. Each frame 16 comprises a first elongate section 18 which mounts the beam 12 and a second elongate section 20 which mounts the beam 14.

In cross-section the section 18 has three fingers. A first finger 22 extends upwardly as shown in the drawings and locates along the side edge of the beam 12, and is mounted thereon by staples 24. A lip 26 is provided a short distance below the top of the finger 22. A second finger 28 extends perpendicularly to the first finger 22 and locates beneath the beam 12. A third finger 30 extends at an outwards and downward inclination from the fingers 22, 28. The finger 30 has a channel 32 extending along its length, which channel 32 narrows towards its opening from a relatively broad base to provide a dove tail cross-section.

The second section 20 is identical to the first section with the first finger 22 extending along the inner side of the beam 14, the second finger 28 extending along the top of the beam 14, and the third finger 30 pointing back

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towards the third finger 30 from the first section 18.

A plurality of cross members 34 extend between the respective third fingers 30. The cross members 34 are inclined relative to the longitudinal direction of the beams 12, 14. Adjacent members 34 are inclined with an opposite inclination such that adjacent members 34 define a series of inverted V's along the length of the beams 12, 14. The members 34 are formed from pressed metal sheets and have a full width no low side walls at each end, with side walls which increase to a maximum height at the mid-part of the members 34 to provide a waisting.

The ends of the cross members 34 are mounted in the respective channels 32. Figs. 5 and 6 show one method of mounting wherein transverse oblong recesses 36 are provided on the underside of the ends of the member 34, the recesses 36 being locatable in the channel 32 (Fig. 5). A slightly smaller oblong tool can be inserted in the recesses 36 and rotated to cause the narrower parts of the recesses 36 to spread out and lock in the wider base of the channels 32, as shown in Fig. 6. An alternative method of mounting is shown in Fig. 7 where projections 38 are provided on the underside of the ends of the cross members 34. The projections 38 are locatable in the channels 32 and mountable therein by riveting or other fastening means.

For transportation and storage the two parts of the assembly 10 can be laid on top of each other. When it is required to use the assembly 10, they are placed with the two upper beams adjacent and parallel to each other. The beams 12 can be temporarily held together by a plurality of spring clips 40 which locate thereover and are held in position by engagement beneath the lip 26. Bracing members can now be fitted. These include a transverse bracing member 42 and two inclined bracing members 44. The members 42, 44 are mounted on the assembly 10 by virtue of brackets 46 which have an upstanding plate 48 with a through hole 50, and also a lower dove tail shaped part 52 which is locatable in the respective channel 32. Once the bracing members 42, 44 are fully in position, the spring clips 40 can be removed if required.

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Where the assembly 10 is to be mounted rest on a wall, the upper beams 12 and first sections 18 can be formed to be longer than the lower beams 14 and second sections 20, so as to extend there beyond. A support member such as a block of timber 54 can be mounted on the underside of the extended part of the beams 12 and first sections 18. The block 54 is mounted by a plurality of screws 56 extending through the respective channels 32. Fig. 2 shows this arrangement with the block 54 resting on a wall 58.

Usually, a plurality of such support assemblies 10 will be used adjacent to each other. The width of the assembly 10 provided by the space between the lower beams 14 generally provides the correct spacing between adjacent assemblies 10. Adjacent assemblies 10 can be joined by an elongate connecting member 59 extending therebetween. The member 59 has a T-shaped cross-section and the stem locates between the respective lower beams 14, with the cross bars of the member 59 mounted on the top of the beams 14 by screws 62.

There is thus described a support assembly which provides for a number of advantageous features. The assembly can readily be transported without taking up undue space and can then be rapidly assembled. The assembly provides the correct spacing between adjacent assemblies without any skilled or difficult operation. The assembly can be made relatively lightweight and also of strong construction. At least the vast majority of the installation of these assemblies can be carried out by a single person.

Fig. 8 shows almost two complete second support assemblies 60 usable in a similar situation to the assembly 10. The assembly 60 has a more simple construction than the assembly 10. Each assembly 60 is again formed from two identical parts. Each part again comprises an upper wooden beam 62, but in this instance the beam 62 has a side face 64 which is inclined vertically at an angle of 30° to an opposite side face 66. The opposite side face 66 is perpendicular to the top and bottom of the beam 62. Similar lower wooden beams 62 are also provided. Each beam 62 is mounted by its face 64 along an end of an elongate board 68, with one beam 62 on one side of the board 68 at

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one edge thereof, and another beam 62 on the opposite side of the beam 68 on the other side edge thereof. The beams 62 would generally be wooden and mounted to the board 68 by stapling and/or gluing. The board 68 may be made of plywood or glued shavings, or any other suitable material.

Spaced aligned transverse holes are provided through the beams 62 and board 68 mounted thereto. By aligning together the perpendicular faces 66 of adjacent beams 62, these can be mounted together by locating pegs or pins 70 through the aligned holes. The beams 62 may be formed by cutting a rectangular cross-section of the larger beam 72 in half and at an inclination of 30° as illustrated in Fig. 9 to provide two matching beams 62. Such matching beams 62 may be provided adjacent each other.

The support assembly 60 is thus simple to form yet also lightweight and strong. In Fig. 8 the assembly 60 is illustrated providing support between a ceiling 74 and a floor 76 on the next level thereabove.

Various other modifications may be made without departing from the scope of the invention. For example, the sections of the frame could have a different shape or configuration. A different bracing arrangement could be provided. The beams could be mounted differently on the frame. Different materials could be used for the various components.

Whilst endeavouring in the foregoing specification to draw attention to those features of the invention believed to be of particular importance it should be understood that the Applicant claims protection in respect of any patentable feature or combination of features hereinbefore referred to and/or shown in the drawings whether or not particular emphasis has been placed thereon.

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